



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: RB211-524G BYPASS RATIO: 4.3  
 UNIQUE ID NUMBER: 1RR010 PRESSURE RATIO ( $\pi_{00}$ ): 32.1  
 COMBUSTOR: RATED THRUST ( $F_{00}$ ) (kN): 253.0  
 ENGINE TYPE: MTF

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>00</sub> (g/kN) or SN	2.8	28.8	96.9	5.0
AS % OF ORIGINAL LIMIT	14.2	24.4	93.0	27.3
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			116.2	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			136.1	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			153.4	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			178.4	

### DATA STATUS

- PRE-REGULATION  
 - CERTIFICATION  
 x REVISED (SEE REMARKS)

### TEST ENGINE STATUS

- NEWLY MANUFACTURED ENGINES  
 x DEDICATED ENGINES TO PRODUCTION STANDARD  
 - OTHER (SEE REMARKS)

### EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE  
 (ANNEX 16 VOLUME II)

### CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)  
 x OUT OF PRODUCTION (DATE: - )  
 - OUT OF SERVICE (DATE: - )

### MEASURED DATA

MODE	POWER SETTING (%F <sub>00</sub> )	TIME (minutes)	FUEL FLOW (kg/s)	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NO <sub>x</sub>	
TAKE-OFF	100	0.7	2.620	0.39	0.59	58.71	3.0
CLIMB OUT	85	2.2	2.080	0.27	0.43	40.54	3.6
APPROACH	30	4.0	0.700	0.37	1.01	9.56	1.8
IDLE	7	26.0	0.260	0.89	13.74	4.63	0.2
LTO TOTAL FUEL (kg) or EMISSIONS (g)			958	540	5926	21075	-
NUMBER OF ENGINES				2	1	1	1
NUMBER OF TESTS				3	3	3	3
AVERAGE D <sub>p</sub> /F <sub>00</sub> (g/kN) or AVERAGE SN (MAX)				2.1	23.5	83.6	3.9
SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				0.3	0.3	1.4	0.4
RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				1.87-2.44	23.13-23.81	82.34-85.08	3.7-4.3

### ACCESSORY LOADS

POWER EXTRACTION 0 (kW) AT - POWER SETTINGS  
 STAGE BLEED 0 (% CORE FLOW) AT - POWER SETTINGS

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	101
TEMPERATURE (K)	283-286
ABS HUMIDITY (kg/kg)	0.006

### FUEL

SPEC	AVTUR
H/C	1.91
AROM (%)	20

MANUFACTURER: Rolls-Royce plc  
 TEST ORGANIZATION: Rolls-Royce Ltd  
 TEST LOCATION: SINFIN-Derby  
 TEST DATES: 01/04/1987-01/10/1992

### REMARKS

1. HC data remeasured.

Compliance with Fuel Venting requirements: - ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)